August 1976

Soil Conservation

U.S. Department of Agriculture

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SCIENCE & TECHNOLOGY

From the Administrator

What's Left of Our Cropland "Frontier"?

Release this summer of results of the SCS Potential Cropland Study attracted widespread interest, not only from farmers, but also from land developers, commodity specialists, and all manner of groups concerned with land and water use.

What made news was our estimate of 111 million acres of land not now in crops that could be switched to cropland if needed. This is a considerably lower figure than previous USDA estimates, which had gone as high as 266 million acres of available cropland.

But SCS stands by its findings. To make our study, we started fresh, with SCS field people inspecting 41,000 sites in 506 counties. The sites were selected at random, using acceptable statistical techniques. They were located in 50 states, Puerto Rico, and the Virgin Islands. USDA's Economic Research Service helped us plan the study.

We identified three different acreages of potential cropland that could be switched to crops with varying degrees of difficulty and expense.

First, 24 million acres of "prime farmland" could be converted simply by beginning tillage. They have soils which require little or no protection from erosion and, with normal rainfall, should produce high yields.

Second, we identified 54 million acres of "high potential" land that would require some soil and water management to prevent erosion and sedimentation or to dispose of unwanted water.

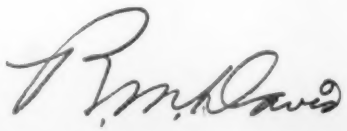
Finally, there are another 33 million acres with "medium potential" for conversion to crops. These acres pose more serious erosion hazards and water disposal problems and would cost more to convert. Nevertheless, soil conservationists see no reason why, with application of current technology, these acres could not be used for crops if the need arises.

SCS questions whether acreages beyond this 111-million-acre total could be brought into cropland safely.

Our field people also determined that some 400 million acres are planted in crops this year, including hay for cutting. This means that nearly four-fifths of the total cropland available in this country is already in crops; plant that last 20 percent and our cropland "frontier" is closed. An expanding U.S. population, coupled with growing demand for agricultural commodities abroad, makes our potential cropland figures seem very small indeed.

Our survey shows that urban development is already swallowing farmland at the rate of about 2 million acres a year, and too much of that land is either prime or has high potential for growing crops.

Certainly it is in the best interest of all Americans to preserve our better croplands for agricultural purposes, and not to allow them to be paved over for airports, housing developments, shopping centers, and highways.



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Earl L. Butz
Secretary of Agriculture

R. M. Davis, Administrator
Soil Conservation Service

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Surface Mine Reclamation in the Mountain State

by Frank W. Glover, Jr.

If you can't reclaim it, don't mine it.

That is the law today in West Virginia, where coal has been surface mined for more than half of this nation's 200 years.

The state made its conservation regulations catch up to expanding mining capabilities by passing the Surface Mining and Reclamation Act of 1971.

The act has a clearcut objective: to permit efficient surface mining of coal while keeping off-site damages to a minimum.

This means controlling runoff with sediment ponds and other measures, reducing slope length, and seeding and mulching as soon as possible after mining.

Mine operators prepare detailed plans for mining, blasting, drainage, and sediment control before mining begins; they also prepare plans for seeding, fertilizing, and mulching.

Such preplanning is strongly recommended by the Soil Conservation Service (SCS). During this stage, SCS district conservationists offer mine operators valuable technical assistance, based on knowledge of soils, water, and plants.

At this preplanning stage, subsurface material with excessive acid-producing potential is identified. Provisions are made so that, after mining, soils that will support plant growth are replaced on the surface.

SCS plant materials centers have played a major role in reclamation by developing plant varieties that will grow on acid mine sites. These include 'Chemung' crownvetch (Coronilla varia), 'Tioga' deertongue

Top photo: In West Virginia, grasses and legumes are required to stabilize soil immediately after surface mining. Weeping lovegrass was used here. Below: A sediment basin is installed before mining begins. West Virginia requires sediment control at mining sites to reduce offsite damage.

grass (Panicum clandestinum). 'Arnot' bristly locust (Robinia hispida), another SCS-developed shrub, beautifies the landscape while it conserves the soil.

The science and art of mine reclamation advanced by several large steps from the 1950's to the 1970's in West Virginia. Mine operators, soil conservation districts (SCD), and various federal and state agencies experimented with plants to control erosion and sedimentation.

Interagency teams evaluate many of these plantings each year.

Of the woody species, black locust trees (Robinia pseudoacia) planted by hand have had the highest survival rate and probably do the best job of protecting an area. After black locust trees die at 10 to 12 years (due mostly to insect damage) the surface is protected from erosion by grasses, weeds, hardwood seedlings, and accumulated organic matter.

The shrub, autumnolive (Elaeagnus umbellata) has grown well and is a valuable species for wildlife. Pines are slower growing and provide little protection against erosion during the first 6 to 8 years after planting.

Of the grasses and legumes, Kentucky 31 fescue (Festuca arundinacea) has done well consistently. Redtop (Agrostis alba) and weeping lovegrass (Eragrostis curvula) provide early ground cover. Sericea lespedeza (Lespedeza cuneata) is probably the best of the legumes. Birdsfoot trefoil (Lotus corniculatus) has done well on many sites, and alfalfa (Medicago sativa) has grown well on a few. Plantings of crownvetch (Coronilla varia) and flatpea (Lathyrus sylvestris) look promising. They appear to live longer than either birdsfoot or alfalfa.

The 1971 law requires consideration during reclamation of intended future land use. This often is grass-

"The SCS-SCD partnership in West Virginia remains flexible . . . We want to assist the coal mine operators and the West Virginia Department of Natural Resources in any way possible. Properly reclaimed surface mines benefit everyone."

land agriculture, the primary farming activity in West Virginia. SCS currently recommends tall fescue or orchardgrass with birdsfoot trefoil, alfalfa, or white clover for hay and pasture on surface-minded lands.

Woody species such as black locust, European black alder (Alnus glutinosa), autumnolive, shrub lespedeza (Lespedeza bicolor), white pine (Pinus strobus), and Virginia pine (Pinus virginiana) are still planted on many sites. Sometimes either recreation or timber production is the intended future land use. Last year, 850 apple trees were planted on surface-minded lands in Logan County by the Buffalo Creek Coal Company for fruit production.

Over the last 20 years, soil conservation districts have played a role in the reclamation of surface-mined lands in the state. Districts began this work in 1955 by providing work crews, along with technical assistance from SCS, for reclamation. In 1958, a state law was passed which made mine operators responsible for establishing vegetation on their surface-mined land. But they were absolved of further responsibility if they turned the reclamation over to local soil conservation districts.

From 1958 to 1971, districts played a major role in surface mine reclamation. Many mine operators contracted with conservation districts to carry out the required reclamation.

After the 1971 regulations went into effect, mine operators could no longer be relieved of long-range responsibility for reclamation; thus, West Virginia's soil conservation districts were not directly as heavily involved in mine reclamation as before.

Now, however, more mine operators are turning to conservation districts for seeding and planting jobs. Some operators who have their own employees reclaiming their mines seek technical assistance from SCS through the local districts.

"The SCS-SCD partnership in West Virginia remains flexible," said SCS State Conservationist Craig M. Right. "We want to assist the coal mine operators and the West Virginia Department of Natural Resources (DNR) in any way possible. Properly reclaimed surface mines benefit everyone."

SCS and the districts also are involved through "special reclamation" projects. The 1963 reclamation law requires mine operators to pay to the state $30 per acre of coal mined by surface removal. This created a fund, still being built upon, for reclamation of "orphan strip mines," old mines never reclaimed because of either inadequate laws or enforcement in past years.

The DNR has contracted with districts for reshaping and revegetating many of these old, bare sites. SCS has participated in the planning. At times special efforts are made to experiment with future land uses, such as by planting shrubs for food and cover and creating small ponds for wildlife habitat.

Some special reclamation has been concentrated to clean up badly

During mining, the length of slopes can be shortened with diversions to break the flow of water and provide erosion and sediment control. This diversion is near Beckley.

polluted streams to make them habitable for fish again—such as Dents Run at Morgantown and Elk Creek at Clarksburg.

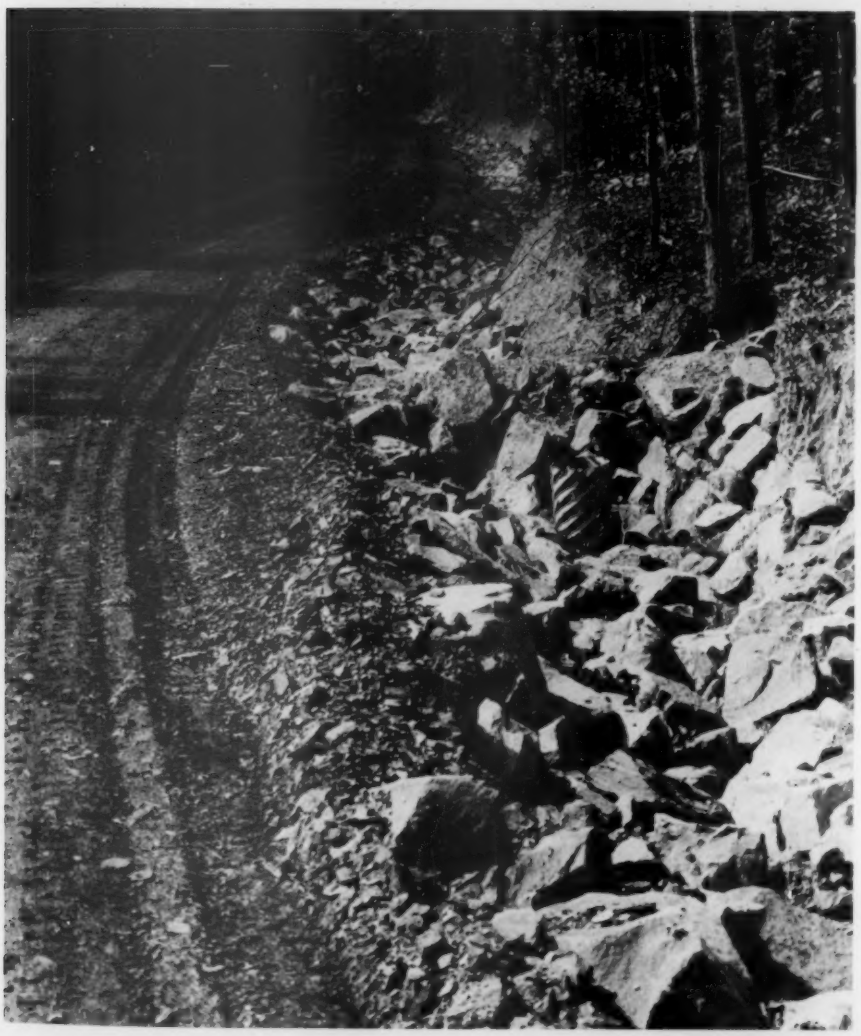
One of the major sources of sediment—uncontrolled erosion from haulageways—is now being controlled. Specifications require all roads to be drained into some type of sediment trap. Many haulageways include rock-riprap ditches with metal, perforated standpipes on drain culverts. Standpipes help prevent sediment from filling the culverts.

Grading is also helping control erosion. The 1971 law limits the highwall left after mining to a maximum height of 30 feet. DNR inspectors may require filling back to the original grade, eliminating the highwall altogether. At the same time, rebuilt slopes are being made more stable. In some places, surface mining is creating areas of level land by removing hill tops.

Careful grading for drainage to an established watercourse includes the construction of diversions and outlets.

One of the basic changes in reclamation over the years has been in revegetation.

At one time, haulageways from surface mines polluted West Virginia streams with sediment. Today, all such roads are graded and drained. A rock-lined ditch and a standpipe at the culvert entrance reduce sediment along this road.



In 1939, the state legislature passed a law requiring mining permits and seeding after mining. However, there were no requirements to regrade; no standards for judging satisfactory stands of vegetation; no guide for planting; and no regularly scheduled inspections.

The 1958 law required scheduled inspections and in 1967, a new Surface Mining Act set rigid standards for controlling erosion. The act emphasized grasses and legumes as the first step in effective reclamation—a basic change from the trees and shrubs previously preferred or required.

One illustration of why this change occurred comes from Quentin Bennett, SCS district conservationist at Clarksburg. He recalls that in the mid-1950's, he worked on the first mine site planted by a West Virginia conservation district. The plan called for planting 1,000 trees and shrubs per acre. These plantings prospered, but the basic ground cover—still healthy today—was a variety of deertongue grass which came in as a volunteer.

A grass or legume cover is now required in West Virginia on all sloping mined lands in addition to any trees planted.

The tools are available—both for controlling erosion during and after mining and for shaping the land for reclamation. Many coal companies are now cooperating to use these tools to make the future look better for all of West Virginia.

Mr. Glover is SCS state resource conservationist, Morgantown, West Virginia.

Great Plains Hit by Most Extensive Wind Damage in 20 Years

More than 6 million acres of land were damaged by wind in the Great Plains during the 1975-76 erosion season, the most extensive damage since the drought years of the mid-1950's.

Soil Conservation Service field reports from 352 counties in the 10-state area showed 6.2 million acres damaged from November 1975 to May 1976, compared to 3.8 million acres damaged during the same period a year ago. More than 90 percent of the damage was to cropland.

States reflecting the highest percentage of damage increase were Kansas, with 907,288 acres damaged compared to 81,676 last year; Oklahoma, with 619,867 acres damaged compared to 63,465; and Nebraska, with 348,343 acres damaged compared to 49,760.

Texas reported the most land damaged, nearly 1.6 million acres, but that figure is less than the 2 million acres damaged in Texas a year ago. New Mexico was the only other state to report a decrease in wind erosion damage.

SCS considers land damaged if enough soil has been removed or deposited to subject the land to further erosion hazard, to materially lower yields, or to impair its capacity to produce.

Crops or cover were destroyed on more than 2 million acres of land not damaged. Of this total, 93 percent occurred in the southern Great Plains states.

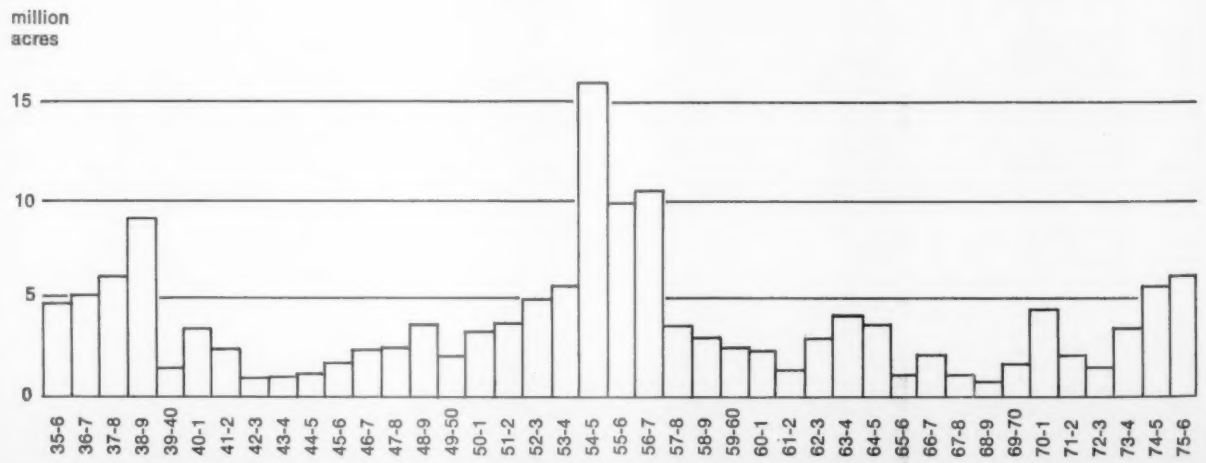
Emergency tillage to prevent land damage was done on 2.4 million acres, mostly in the southern Great Plains states.

Contributing to the increased wind erosion this year were prolonged drought, inadequate crop residue cover or cover crops, overgrazing, and excessive tillage.

SCS has kept statistics on Great Plains wind erosion damage since 1935, except for a 10-year period beginning in 1943 when figures were compiled by the Great Plains Agricultural Council. Damage is highest November through May, when high winds are most frequent, there is less protective cover on the soil surface, and there is usually less precipitation.

Acres of Land Damaged Annually in Great Plains

Seasons 1935-36 to 1975-76

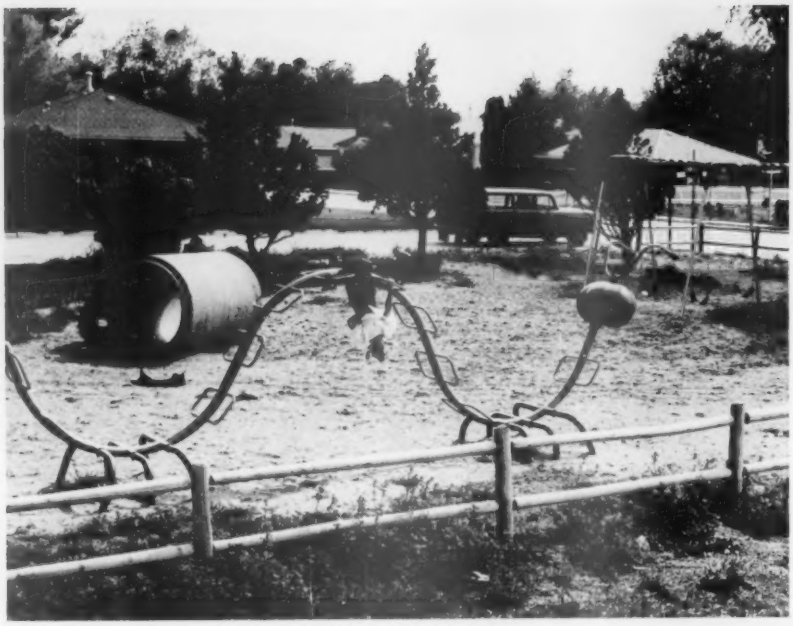


Windbreak in Action

In the rural community of Hebron on South Carolina's coastal plain, 55 farmers banded together in 1967 to stop disastrous soil blowing on their once fertile land. With the help of the Marlboro County Conservation District, they planted some 40,000 pine seedlings to protect their fields of cotton and soybeans.

Now, nearly 10 years later, farmers can see the benefits of their windbreaks. Both fields pictured are in Hebron community. Both were plowed just several hours before the pictures were taken. In top photo, furrows protected by a windbreak are still sharp. In the unprotected field in photo below, however, soil has already blown from the ridge into the bottom of the furrows.

The protected soil is staying in place, organic matter is starting to build up, and the soil is regaining its fertility.



Now tiled and covered, the New North Platte Ditch lies beneath a chain of mini-parks in the town of Torrington, Wyoming.

by Jerry V. Hattan
and Jerry D. Gladson

The Beautiful Coverup

The Grassroots Gals' Garden Club has unearthed and then covered a town problem . . . and made it into an award-winning environmental project.

Club members coordinated efforts to cover an open irrigation ditch in the small town of Torrington in southeast Wyoming and to beautify and utilize the new land area.

They worked with the town council, Soil Conservation Service, Agricultural Stabilization and Conservation Service (ASCS), the Wyoming Recreation Commission—and the voters. A bond issue was passed by an overwhelming majority to share the cost of developing parks on the new land area created by covering the ditch.

The New North Platte Ditch had caused no environmental problems or hazards in the late 1800's when it was established.

But by the 1970's, it was causing several serious problems. It ran through a 13-block area of homes and presented a safety hazard to children. It also bred mosquitos. An estimated 15 percent of the flow was lost to seepage and evaporation during the peak irrigation period, causing a water shortage problem for farm crops.

To solve all of these problems, the Grassroots Gals initiated a project they called "the Beautiful Coverup."

They helped convince the Torrington Town Council to make the land area into a chain of miniparks after the ditch was tiled and covered.

ASCS agreed to cost sharing with the farmers for the pipeline because of the conservation of irrigation water that would result.

The Wyoming Recreation Commission provided financial aid for park development through its Land and Water Conservation Fund.

The Soil Conservation Service did a need and feasibility study for the proposed project and designed an elliptical reinforced concrete pipe to convey the 26 cubic feet per second flow through the town.

Landowners whose backyards bordered the once weed-covered ditch made many home and landscaping improvements on their own.

The Grassroots Gals are using their $4,000 prize money—for first place in the 1973-1975 Environmental Improvement Program sponsored by the National Council of State Garden Clubs, Inc., and by Sears, Roebuck and Company—to begin their second environmental improvement project, "Downtown Beautification."

Mr. Hattan is SCS civil engineering technician, Torrington, Wyoming.
Mr. Gladson is SCS district conservationist, Torrington, Wyoming.

Dam the Park

by Frank Lucas

Two years ago this month, the annual flooding in Upper Darby Township near Philadelphia, Pennsylvania, was worse than usual—7 inches of rain in 3 hours caused more than $1 million in damages.

Supervisors of the township considered full flood control but found it out of the question because of economic and physical limits: With the high population density of the township—nearly 100,000 people in less than 8 square miles—large flood prevention structures would cost too much; and because the stream runs through a conduit under part of a town, diking would not help.

Therefore township officials, with SCS guidance, decided to build a floodwater retention dam in a township park—a turnaround from the more typical practice of developing a park around a dam.

"The dam won't do much when a big flood comes along, but we hope to eliminate some of the annual nuisance floods," said Lawrence Tennity, the township construction engineer who designed the gabion-type dam. "The water that goes through the pipes in the dam will safely pass through the conduit under the township of Upper Darby."

SCS in Media assisted with the development of erosion and sediment control plans for the dam, which was completed last year.

Mr. Lucas is SCS district conservationist, Media, Pennsylvania.

"Granting" a Little Seed Money

Recording cassettes . . . 1,000 pounds of gypsum . . . fire brick for an outdoor kiln.

These were just a few of the items in the Pontotoc County Conservation District budget when it offered $30 to $50 "mini-grants" to teachers this year for projects dealing with conservation and the environment.

"The money for curriculum projects serves as an incentive," explained Dan A. Sebert, education specialist for the conservation district in Oklahoma. "It usually is used to offset costs of supplies used in innovative programs."

The Oklahoma Conservation Commission also participated in the experimental grant program.

Eight grants were made this spring, two for original curriculum programs and four for classroom projects.

A university instructor received a grant for an art project in which pottery was made from natural materials. Students used a soils map to locate soil high in clay content, used for making pottery in a student-built kiln. They gained skills in pottery making, soil identification, map reading, masonry, and engineering.

Another grant went to two high school teachers who worked with 240 students on slide-tape presentations about water, soil, air, and noise. The programs are now a permanent teaching aid and will be used for public information.

Most of the grants for class projects were used to improve outdoor classrooms. A special education class cleaned and planted on school grounds and photographed the stages of improvement. A vocational class helped transform a dump into an outdoor classroom. Another class built a weather station to enrich a study on the effect of weather on worldwide food production.

Mini-grant recipients kept records of their projects, documented with photographs. From the reports, the district education committee will evaluate the program, assisted by teachers, professors, and a representative from the Oklahoma Department of Education.

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Five Point Program in the Palouse

Would you exchange nearly a ton of rich topsoil for a bushel of wheat? Farmers in many parts of the Pacific Northwest's Palouse region make this expensive bargain every year.

The Latah Soil and Water Conservation District (SWCD), however, has hit on a solution that combines five conservation practices to cut soil losses by 75 to 90 percent on more than 26,000 acres of western Idaho wheatland.

The practices are minimum tillage, contour seeding, dividing steep slopes (a modification of contour stripcropping), critical area seeding, and elimination of summer fallow.

District supervisors developed the "Five Point Program" following the 1973 Idaho Governor's Conference on Erosion and Sediment Control. Today, 30 of the county's nearly 900 farmers have qualified as "Five Point Farm-

ers," entitling them to priority technical help through the SWCD.

The Palouse is an area of loess soils, as deep as 12 feet, in Washington, Oregon, and Idaho. The rich soils can produce more than 100 bushels of wheat per acre without irrigation, but are highly erodible.

Each bushel represents almost a ton of topsoil lost through erosion by farmers who use typical agricultural practices, according to Tom Carlson, SCS district conservationist for Latah County. "A single big rain can wash away more than 150 tons of soil an acre that ends up blocking roads and filling downstream reservoirs."

"A single big rain can wash away more than 150 tons of soil an acre . . ."

To become a "Five Point Farmer," an applicant must develop a conservation plan, with Soil Conservation Service assistance, that includes target dates for completing the five conservation practices. Applicants then attend an Interagency Review Board meeting to discuss the plan with SWCD supervisors, the county extension agent, the county weed supervisor, and representatives of the Agricultural Stabilization and Conservation Service and SCS.

The selected farms serve as models, according to Carlson. "For each Five Point plan on the ground, dozens of neighbors have seen the results and have adopted at least some of the practices for their land."

The Five Point Program also has attracted statewide attention. The Idaho Department of Health and Welfare has proposed preparing Five Point plans for all farms in the Cow Creek watershed of Latah County. The department's proposal includes a monitoring system that would measure changes in the creek's sediment load as conservation practices are carried out.

As the program grows, Latah SWCD supervisors are gaining confidence that it will help bring an end to the severe problem that has plagued Palouse farmers for years.

It doesn't take long to figure out which is under Idaho's Five Point Program. At left: Clean cultivation preceded this winter wheat and is leaving its mark. At right: Plenty of evidence—and soil—marks a Five Point Farm.

Campaign Draws Interest in Conservation Tillage

More Iowa farmers are trying minimum tillage, thanks to a campaign undertaken last year by the Hancock Soil Conservation District (SCD).

The campaign began with a field day to demonstrate the soil-saving technique and ended with a prize drawing for campaign participants.

"District commissioners set three objectives during campaign planning," according to SCD Chairman Cletus Hejlik. "We wanted to find out the extent and types of minimum tillage being used around here, to encourage farmers to give the technique a try, and to make more people aware of conservation district services."

More than 100 farmers participated in the SCD-sponsored field day, held during April 1975, when various minimum tillage equipment and methods were demonstrated.

The technique was explained in the SCD newsletter, which goes to the district's 1,400 farmers, and was promoted on radio and television and through local newspapers. Posters also where used to urge farmers to sign up for the campaign and a chance at more than $1,000 in prizes —from tractor radios to airplane rides—donated by agricultural equipment dealers.

During the year, more than 230 registered in the campaign. Results showed more than 150,000 acres in corn and beans, nearly half the county's cropland, being farmed with some form of reduced tillage.

"To qualify, participants had to be using minimum tillage equipment to its best advantage," Hejlik said. "We found some people didn't realize they were causing as much damage as they would have by plowing—by disking three or four times and covering the residue."

The district's campaign success provided directors with "courage to try the approach again," according to Hejlik. Called "Save Our Soil and Wildlife," the current effort stresses tree and shrub plantings for windbreaks, field corners, and other critical areas.

"Campaigns like these put our soil conservation district in the public eye," said Hejlik. "Once people know what we can do, we can begin to help with their individual problems."

Evergreen Forest North Dakota Style

by Elmer R. Umland

A tree planting project started 7 years ago has brought 600,000 more evergreens, equal to a dozen per resident, to grazing lands in Ward County, North Dakota.

The plantings of ponderosa pine and some Rocky Mountain juniper, eastern redcedar, and blue spruce protect the land and provide a haven for wildlife in the Souris River Basin near Minot.

The project was the idea of the late Gisli Johannson, Jr., who served as SCS district conservationist at Minot.

The conservation district usually orders trees from the North Dakota School of Forestry and keeps its tree planter in nearly constant use each spring.

Some landowners receive cost sharing help from the Agricultural Stabilization and Conservation Service (ASCS). ASCS calls the practice "Odd Area Plantings of Trees and Shrubs for Beautification of Countryside and Wildlife Benefits."

The practice includes plantings that will provide wind and water erosion control and are protected from fire and destructive grazing.

"The program has been an overwhelming success since the first year it was offered," said Rueben Rue, county executive director, ASCS, in Minot.

An SCS analysis of the evergreen plantings indicates:

—the evergreens did best with adequate scalping of the sod and when placed at about 6-foot intervals;

—ponderosa pine had the highest survival rate, about 80 percent, and the fastest annual growth, about 9 inches on all sites;

—the best growth and survival were on north, northwest, and northeast exposures.

Bob Reinharts, on whose farm the first trees were planted in the spring of 1968, notes that 90 percent of the ponderosa pine planted are living and "providing 6-foot tall monuments to Johannson."

Mr. Umland is SCS forester in Bismarck, North Dakota.

Wiregrass: Catalyst for Action

by Hubert W. Kelley

In southeastern Alabama, the Wiregrass RC&D makes things happen.
Since it began operations in 1967, this lively resource conservation and development project has helped people in its 9-county, 4-million-acre area to improve their lives and livelihoods in dozens of different ways.

Wiregrass RC&D gets its name from a tough, wiry plant that used to cover the region's wooded coastal plains. Described by one historian as "the poorest grazing a cow ever set hoof in," wiregrass today is getting hard to find. Few mourn its passing.

But the RC&D that bears its name is taking on more life every year. Leadership is coming from a 27-member RC&D council, composed of three members from each county. Of the three, one is a county commissioner, one is a member of the local soil and water conservation district, and one is selected "at large" from the ranks of local farmers, bankers, and businessmen. As might be expected in this heavily agricultural area, most members are farmers or part-time farmers—or business people who rely on farm customers.

"Accomplishment . . . We can point to tangible progress in stabilizing roadbanks, building boat landings, healing gullies, and promoting conservation generally."

Farmer Milton J. McKeller, former Wiregrass RC&D Council chairman, attended four council meetings plus four of a nine-man executive board a year. "We put in the hours because we believed in what we were doing," he said.

Specific RC&D measures are the work of six resource committees: information and education; agriculture and land use; recreation and tourism; fish and wildlife; forestry; and community services and facilities.

"Council members are all busy people," says former council chairman Milton J. McKeller, who raises cattle and timber in Pike County. "But attendance at council meetings is really astounding. All these people come faithfully without compensation. And attendance is even better today than it was at first."

What keeps them coming?

"Accomplishment," says Marion Sanders, another former council head and a corn-and-peanut farmer in Coffee County. "We can point to tangible progress in stabilizing roadbanks, building boat landings, healing gullies, and promoting conservation generally.

"And we've done something else. The RC&D for the first time has got county governments and soil conservation districts talking together and working together. For the first time these people have seen our difficulties as area-wide problems. Before the RC&D, you couldn't interest anybody in a problem outside his own county." Sanders is a conservation district supervisor.

Stopping big gullies from getting worse has been a major undertaking of the RC&D. People unfamiliar with the erosive soils in parts of the Southeast may find it hard to visualize one of these red clay "canyons" or the rapidity with which it can develop. A single hard rain can start a gully, and in just a few years the chasm may be as deep as

Not a very big gully by Wiregrass standards, but it had to be stopped before it ate into nearby highway. Pipe is outlet for principal spillway, which runs beneath embankment in rear. (See photo on page 17.)

40 feet, a hazard to human and animal life as well as property.

Gullies in the Wiregrass country were threatening cropland, highways, even the parking lot behind Coffee County's new Farm Center Complex. Through efforts of the RC&D, the government's share of cost sharing for grade stabilization structures to stop the biggest gullies was raised from 50 to 80 percent. Several young men employed under Title X of the Job Opportunities Program worked to heal the gullies—in Coffee County under county direction; in Covington, under the district.

"Most of the Covington County Title X employees are working on roadbank stabilization—and the RC&D helped spark the program," according to County Commissioner Hiram Pitts, who is also secretary of the RC&D Council. "If I had to select the most important single contribution of the RC&D in these parts, it would have to be erosion and sediment control . . . sloping and planting these raw, red roadbanks, healing gullies, and getting more farmers to use soil conservation practices."

Pitts recalls that many acres once called "wasteland" are now in productive pasture and woodland.

"These RC&D sediment control programs are doing more to clear up stream pollution than anything else I can think of," the commissioner says. "There is already a noticeable improvement in the appearance of our streams."

But he admits that the program still has a long way to go. Pointing to a wide shallow stream, blocked by red clay bars and surrounded by dead trees, Pitts says it was once deep and flowing and usable for fishing and boating.

"No fish there now," he says, "all because of sediment. I'd guess that about half our sediment washes away from unprotected roadbanks."

Wiregrass RC&D also gets involved in helping rural people get community water and sewage systems.

"Farmers Home Administration (FmHA) makes the loans for these systems," said Flournoy Whitman, Coffee County commissioner and current chairman of the RC&D Council. "But Bill Ray of the FmHA office here is the first to admit that the RC&D is playing a major role in educating people on the need for water systems, doing groundwork, and getting them to come out for the first organizing meeting." As a result, rural water towers are becoming a familiar sight in southeastern Alabama today.

The RC&D also is helping industry develop and expand, creating more jobs in the area. According to one Covington County manufacturer, it was RC&D project engineer Richard M. Keith and local district conservationist W. F. "Pat" Patterson who helped him make a "problem" plant site usable.

John Vick, general manager of Dixon Plywood in Andalusia, says his firm owned a 150-acre tract, located near a good highway and a railroad, that met most of its requirements for a new plant site.

"But when we started construction," Vick recalls, "we discovered

On other side of embankment is inlet to carry storm water through grade control structure. Culverts at rear of structure protect highway. Federal, county, and private funds went into these Alabama "gully-stoppers."

Left: Roadbanks still erode despite concrete flumes built to carry rainwater from field. Below: Dynamic John Vick of Dixon Plywood insists that RC&D helped him save "problem" building site.

Once deep and free-flowing river is now shallow, choked by sediment. During heavy rains, it overflows its banks, flooding nearby areas, killing trees, and depositing its load of sediment.

"No fish there now," he says, "all because of sediment. I'd guess that about half our sediment washes away from unprotected roadbanks."

we were in water-bearing sands. Springs started sprouting everywhere."

Keith and Patterson worked with Vick's architect in helping design a 500-foot French drain that runs through the plywood plant site, with six laterals at intervals to keep the water moving underground.

"It worked," says Manager Vick, "and enabled us to build our new plant where we wanted it." Dixon Plywood today employs 200 people; boasts a $3 million annual payroll; and provides work for at least 100 more people who cut and transport the "peeler" logs to the factory.

Through example, demonstration, and technical aid, the RC&D and the district also are having an impact on agriculture in the area. Farmers come from miles around to inspect the system of parallel terraces with tile drain outlets in the peanut fields owned by Council member Sanders. They were the first in his county, and they helped dry out low spots in the sandy fields quickly, even after torrential rains.

"I don't think we can afford to recommend any practices we don't try on our own farms first," Sanders remarks.

And in nearby Coffee County, RC&D leaders take visitors to the big general farm of Martin Moates, a conservation district supervisor and the first local grower to use no-till techniques in growing corn.

Some scoffed at first, like Moates' neighbor who said, "I never knew a man too lazy to plow before." But as the weeks went by, and the no-till corn looked better and better, the wisecracks died away and farmers started taking notes.

Farther south, in Geneva County, the RC&D and others are helping farmers make the difficult and expensive change from cotton farming to vegetable farming. Vast fields of tomatoes, cucumbers, peppers, and melons now produce more income per acre than cotton farmers could hope for, with the produce moving through a new farmer-owned packing house. RC&D technical people helped with new irrigation systems and reservoirs, and with soils interpretations for the new crops. They answered questions like: How much water should we put on the land? How fast will the soil take it? How much slope before the soil washes? Which acres are best for tomatoes?

Woodlands also get attention, since 55 percent of the RC&D's land area is forest. Barry Lawrence, assigned by the State Forestry Commission to the RC&D project area, concentrates on getting landowners to grow more trees under various cost-sharing programs and on improving present stands by thinning and pruning.

RC&D Council member Marion Sanders is veteran of three wars: World War II, Korea, and never-ending battle against soil erosion.

Job Opportunities Program employees build temporary flume to protect new county Farm Center Complex from menacing gully.

"I never knew a man too lazy to plow before." But as the weeks went by, and the no-till corn looked better and better, the wisecracks died away and farmers started taking notes.

RC&D project coordinator Cameron Lyle inspects crop damage in inadequately protected cornfield after more than 6 inches of rain in 12 hours. Sandy coastal plain soils are highly erosive.

"Big problems are lack of money and lack of interest," says Lawrence, "but we're doing something about both in Wiregrass. The RC&D is helping, because we have two foresters in the area instead of one and more advantageous cost sharing for the landowner."

A driving force behind all the action in Wiregrass is RC&D project coordinator Cameron Lyle, whose office is in Ozark. Lyle thinks, eats, and sleeps Wiregrass.

"When Cameron is showing you what's happened down here," says a friend, "he hates to see the sun go down."

"We work with anybody and everybody," reports Lyle. "In Henry County, we worked with a mayor, a school superintendent, the Kiwanis Club, and a factory manager to stop flooding in local schools and erosion on the playgrounds.

"To get more recreation, we work with mayors, the Corps of Engineers, and other agencies, businessmen, and university and junior college people, as well as with county and

RC&D Council chairman Flournoy Whitman is proud of role in getting more community water systems.

conservation district representatives. And before long, we hope to have a new 780-acre lake in our own small watershed project.

"It's never easy to get everybody working together, but when the dust clears away, we usually find that the job has got done somehow."

Lyle admits that it's hard to explain an RC&D to a stranger.

"It's not because we do so little, but because we do so much, so many different things," he says. "Whenever there's a problem of land use in these nine counties, the RC&D has a way of getting involved."

Lyle believes that an RC&D is many things to many people. "It's a conservation program; it's a financier," he says. "Or it's planning help or technical help. It's an expediter or a 'facilitator.' But I think of it most as a catalyst—as that mysterious ingredient that somehow starts things happening and is still there when you are finished to take on a new job."

Mr. Kelley is Director, Information Division, SCS, Washington, D.C.

William Covington (left), superintendent of schools in Henry County, joins SCS engineer Randy Martin in examining drainage system to keep water out of low-lying school building. Successful project was RC&D measure.

In Andalusia, RC&D helped new junior college develop tennis courts, ball diamond, driving range and golf course open to the community. Left to right: SCS district conservationist W. F. "Pat" Patterson; RC&D council secretary Hiram Pitts; J. B. "Jim" Rodgers, soil conservation district chairman; and Seth Hammitt, on the college staff.

SCS Launches Study of Windbreaks in the Great Plains

Left: As part of the ground check in pilot study, SCS forester Jim Carr measures length of a windbreak in Buffalo County, Nebraska. Above: Windbreak measured in pilot study is showing effects of use by cattle, such as for shade on this 98-degree day.

The Soil Conservation Service has begun a pilot study of windbreaks and their removal in 10 Great Plains counties. Results will be published by December 31.

The study will determine the number and types of farm windbreaks now on the land, trends in windbreak removal and planting, and reasons for windbreak removals over the last 5 years.

It follows the General Accounting Office (GAO) report last year calling for action to discourage removal of windbreaks in the Great Plains. The GAO report noted the need for accurate, up-to-date information on windbreaks.

The study was launched June 10 in Buffalo County, Nebraska. The other nine counties to be studied are Dickey, North Dakota; Faulk and Hughes, South Dakota; Antelope, Cedar, and Sherman, Nebraska; Trego and Ness, Kansas; and Blaine, Oklahoma.

The counties were selected because each has a large number of windbreaks and each has aerial maps available for the study's comparison periods, 1970-71 and 1974-75. Iowa State University's statistical laboratory in Ames helped identify the sample areas.

SCS will compare aerial photographs to determine windbreak plantings and removals during the last 5 years. SCS field personnel will establish reasons for the removals, such as clearing for center pivot irrigation systems, disease or age of trees, and reorganization of fields for other crops or purposes.

The pilot study will be followed by a comprehensive study covering 346 counties in the 10 Great Plains states.

Staging a Meeting

Do your meetings get started late? Get off the track? Adjourn with problems unsolved?

Iowa's annual short course for soil conservation district commissioners addressed just these problems—and more—in a mock meeting last January at Iowa State University.

The mock commissioners included members of the State Soil Conservation Committee, Iowa Association of Soil Conservation District Commissioners, and various agency leaders. They illustrated the "don'ts" of conducting a meeting.

Representatives from soil conservation districts, the Soil Conservation Service, and Cooperative Extension Service presented the "do's" of conducting a well organized and productive commissioners' meeting.

Nearly 350 people attended the 2-day course, including 200 commissioners representing 83 districts.

Topics during the short course included perspectives on minimum tillage, water quality as it relates to soil management, and progress and attitudes toward soil conservation in Iowa.

The course is sponsored by the Cooperative Extension Service, assisted by the Iowa Association of Soil Conservation District Commissioners, the Iowa Department of Soil Conservation, and the Soil Conservation Service.

Meetings:

August

1–4	National Association of Conservation Districts 1976 Northeast Regional Meeting, New Carrollton, Md.
1–4	Soil Conservation Society of America, Minneapolis, Minn.
10–12	Symposium on Inland Waterways for Navigation, Flood Control, and Water Diversions, Fort Collins, Colo.
15–18	American Agricultural Economics Association, University Park, Pa.
15–18	National Farm and Power Equipment Dealers Association, St. Louis, Mo.
15–19	National Association County Agricultural Agents, Richmond, Va.

September

8–10	Chesapeake Section, American Water Works Association, Ocean City, Md.
9–13	American Horticultural Society Congress, Philadelphia, Pa.
12–17	State Conservationists' Annual Meeting, Kansas City, Mo.
19–24	American Fisheries Society, Dearborn, Mich.
20–24	International Association of Game, Fish, and Conservation Commissioners, Dearborn, Mich.
26–30	Association of Conservation Engineers, Wrightsville Beach, N.C.
27–Oct. 1	American Society of Civil Engineers Annual Convention, Philadelphia, Pa.
29–Oct. 2	National Conference of Editorial Writers, Hilton Head, S.C.

October

2–6	American Bankers Association, Washington, D.C.
3–8	Water Pollution Control Federation, Minneapolis, Minn.
12–15	Annual Meeting of the Hardwood Plywood Manufacturers Association, Toronto, Canada
14–17	National Association of Biology Teachers, Inc., Denver, Colo.
17–20	American Forestry Association, Disney World, Fla.
17–21	National Recreation and Park Association, Boston, Mass.
18–20	American Plywood Association Industry Meeting, Biloxi, Miss.
23–27	National Environmental Sanitation and Maintenance Educational Conference and Exposition, Boston, Mass.

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